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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,323	08/30/2001	Steven L. James	01-0380	1870

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EXAMINER	
WILLIAMS, ALEXANDER O	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/944,323	JAMES ET AL	
	Examiner	Art Unit	
	Alexander O. Williams	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/30/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Serial Number: 09/944323 Attorney's Docket #: 01-0380
Filing Date: 8/30/200;

Applicant: James et al.

Examiner: Alexander Williams

Applicant's election of Group III (claims 1 to 25), filed 9/24/04, has been acknowledged.

Claim 26-50 have been canceled.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The use of the trademark COSMO has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Prior Art figure 1 in view of Bolken (U.S. Patent Application Publication # 2002/0186549 A1).

In claim 1 and similar claims 8, 16, 20 and 23, Applicant's Prior Art figure 1 show a system for fabricating a semiconductor component **12** on a substrate comprising: a plate comprising at least one cavity configured to mold a body segment of the component on the substrate and having at least one corner; an inlet runner **30** on the plate configured to direct a molding compound into the cavity; a vent **34** on the plate in flow communication with the cavity but fail to explicitly show a corner runner on the plate configured to direct the molding compound through the corner.

Bolken is cited for showing an alternative method used to package multi media card by transfer molding. Specifically, Bolken (figures 1 to 24) specifically figure 5 discloses a corner runner **82** on the plate configured to direct the molding compound through the corner for the purpose of providing compound throughout the package.

Detail Description Paragraph - DETX (32):

[0075] e. A set of mold plates 84, 86 is configured for molding a polymeric body peripherally 14 about the circuitized substrate 12 and over portions of the circuit side 62 thereof. Down-set pin holes 106 are provided outside of the card outline 70 in an upper mold plate 86 for insertion of pins 102 to motivate the connecting segments 56 (and attached substrate 12) downward to a lower level against a lower surface of the internal molding cavity 100 in the lower mold plate 84.

Detail Description Paragraph - DETX (33):

[0076] f. The lower mold plate 84 and upper mold plate 86 are assembled with module 48 therebetween. The molding assembly 80 is connected to a supply of molding compound and clamped shut.

Detail Description Paragraph - DETX (35):
[0078] g. Fluid polymeric molding compound 15 is introduced into the molding assembly 80 under conditions which rapidly fill the mold cavity 100, encapsulating the circuit 73 and forming a plastic body 14.

Detail Description Paragraph - DETX (36):
[0079] h. After curing and cooling of the mold material 15, the mold is opened and the molded module 48 removed therefrom. Pins may be inserted in throughholes 106 and used as ejection tools for releasing the module.

Detail Description Paragraph - DETX (39):
[0082] In another embodiment of the invention, the molding assembly 80 may be configured to cover portions of both sides 20, 22 of a substrate 12. The molding cavity 100 of lower plate 84 is varied by providing one or more additional cavities and associated runners for introducing bonding compound 15.

Detail Description Paragraph - DETX (40):
[0083] As described herein, the invention provides a semiconductor card by a method which eliminates a separate glob top encapsulation step, and ensures smooth card edges which are rounded or oblique. Desired card dimensions are readily maintained, and flash material requiring removal is minimized. If desired, the molding assembly may be configured to form several cards simultaneously.

2. (original) The system of claim 1, the combination show wherein the corner includes orthogonal surfaces and the corner runner is configured to direction the molding compound generally parallel to one surface and generally perpendicular to another surface.

3. (original) The system of claim 1 the combination show wherein the substrate comprises a leadframe and the component comprises a semiconductor package.

4. (original) The system of claim 1 the combination further comprises a second plate having a second cavity configured to mold a second body segment on an opposing surface of the substrate, a second inlet runner, a second corner runner and a second vent.

5. (original) The system of claim 1 the combination show wherein the plate comprises a plurality of cavities having a plurality of corners configured to mold a plurality of body segments for a plurality of components on the substrate, and a plurality of corner runners configured to direct the molding compound through the corners.
6. (original) The system of claim 1 the combination further comprises a transfer molding apparatus configured to press the plate against the substrate and to inject the molding compound into the inlet runner.
7. (original) The system of claim 1 the combination further comprises a dummy cavity on the plate configured to mold a dummy segment on the substrate, the dummy cavity in flow communication with the cavity and the air vent.
8. (original) Applicant's Prior Art figure 1 show a system for fabricating semiconductor components on a substrate comprising: a plate comprising a plurality of mold cavities configured to mold body segments for the components on the substrate, the cavities having a plurality of corners; an inlet runner on the plate configured to direct a molding compound into the cavities; and a vent on the plate in flow communication with the cavities but fail to explicitly show a corner runner on the plate configured to direct the molding compound through the corners and to prevent air in the molding compound from accumulating in the corners; and a vent on the plate in flow communication with the cavities.

Bolken is cited for showing an alternative method used to package multi media card by transfer molding. Specifically, Bolken (figures 1 to 24) specifically figure 5 discloses a corner runner **82** on the plate configured to direct the molding compound through the corner for the purpose of providing compound throughout the package.

9. (original) The system of claim 8 the combination further comprising a second plate configured for mating engagement with the plate, the second plate comprising a plurality of second mold cavities configured to mold second body segments on an opposing surface of the substrate and having a plurality of second corners, and a second corner runner configured to direct the molding compound through the second corners.
10. (original) The system of claim 8 the combination show wherein each corner comprises orthogonal surfaces and the corner runner is configured to direct the molding compound in a direction generally parallel to one of surface and generally perpendicular to another surface.

11. (original) The system of claim 8 the combination show wherein the components comprise semiconductor packages comprising a plurality of dice and the body segments encapsulate the dice.
12. (original) The system of claim 8 the combination show wherein the substrate comprises a leadframe and the components comprise semiconductor packages.
13. (original) The system of claim 8 the combination further comprising a transfer molding apparatus configured to press the plate against the substrate and to inject the molding compound into the inlet runner.
14. (original) The system of claim 8 further comprising a mold compound source in flow communication with the inlet runner.
15. (original) The system of claim 8 the combination further comprising a dummy cavity in flow communication with the cavities and the single vent configured to mold a dummy segment on the surface of the substrate.
16. (original) Applicant's Prior Art figure 1 show a system for fabricating semiconductor components on a substrate comprising: a plate comprising a plurality of mold cavities configured to mold body segments for the components on the substrate;
a first runner on the plate configured to direct a molding compound into the cavities; a second runner on the plate configured to direct the molding compound through the cavities and to prevent air in the molding compound from accumulating in the cavities; a dummy cavity in flow communication with the first runner and the second runner configured to receive the air; and a vent on the plate in flow communication with the dummy cavity.

Bolken is cited for showing an alternative method used to package multi media card by transfer molding. Specifically, Bolken (figures 1 to 24) specifically figure 5 discloses a corner runner **82** on the plate configured to direct the molding compound through the corner for the purpose of providing compound throughout the package.
17. (original) The system of claim 16 the combination further comprising a second plate substantially identical to the plate configured to mold second body segments for the components on an opposing surface of the substrate.
18. (original) The system of claim 16 the combination further comprising a connecting runner between the cavities and a second dummy cavity in flow communication with the connecting runner configured to mold a second dummy segment on the substrate.
19. (original) The system of claim 16 the combination show wherein the plurality of mold cavities comprises a pair of cavities.

20. (original) Applicant's Prior Art figure 1 show a system for fabricating semiconductor components on a substrate comprising: a plate comprising a first cavity configured to mold a first component the substrate and a second cavity configured to mold a second component on the substrate; an inlet runner on the plate configured to direct a molding compound into the first cavity; a first corner runner on the plate configured to direct the molding compound through a first corner of the first cavity;
a connecting runner on the plate configured to direct the molding compound from the first cavity to the second cavity; a second corner runner on the plate in flow communication with the connecting runner configured to direct the molding compound through a second corner of the second cavity; a dummy cavity in flow communication with the second cavity and the second corner runner; and a vent on the plate in flow communication with the dummy cavity.

Bolken is cited for showing an alternative method used to package multi media card by transfer molding. Specifically, Bolken (figures 1 to 24) specifically figure 5 discloses a corner runner **82** on the plate configured to direct the molding compound through the corner for the purpose of providing compound throughout the package.
21. (original) The system of claim 20 the combination show wherein the substrate comprises a leadframe and the components comprise semiconductor packages.
22. (original) The system of claim 20 the combination show wherein the substrate comprises a leadframe and the components comprise thin small outline packages.
23. (original) Applicant's Prior Art figure 1 show a system for fabricating semiconductor components on a substrate comprising: a plate comprising at least one pair of cavities configured to receive a molding compound and to mold body segments of the components on a surface of the substrate, the cavities having a plurality of corners; a plurality of corner runners on the plate configured to direct the molding compound through the corners and to prevent air from accumulating in the corners; and a vent on the plate in flow communication with the cavities and the corner runners.

Bolken is cited for showing an alternative method used to package multi media card by transfer molding. Specifically, Bolken (figures 1 to 24) specifically figure 5 discloses a corner runner **82** on the plate configured to direct the molding compound through the corner for the purpose of providing compound throughout the package.

24. (original) The system of claim 23 the combination further comprising a dummy cavity on the plate in flow communication with the cavities the corner runners and the vent, configured to mold a dummy segment on the substrate.
25. (original) The system of claim 23 the combination further comprising a second plate substantially identical to the plate configured to mold the body segments on an opposing surface of the substrate.

Therefore, it would have been obvious to one of ordinary skill in the art to Bolken's corner runners to modify Applicant's Prior Art figure 1 inlet runner for the purpose of providing compound throughout the package

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/666,678,723,685,686,787,788,788,666 29/729,739,741,825,827,841 425/1+ 264/1+	3/3/05
Other Documentation: foreign patents and literature in 257/666,678,723,685,686,787,788,788,666 29/729,739,741,825,827,841 425/1+ 264/1+	3/3/05
Electronic data base(s): U.S. Patents EAST	3/3/05

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexander O Williams
Primary Examiner
Art Unit 2826

AOW
3/3/05